

CLAIMS

1. An information processing apparatus comprising:

a light source;

a converging section for converging light that has been emitted from the light source;

a shifting section for shifting the focal point of the light by changing the positions of the converging section perpendicularly to an information storage layer of a storage medium in accordance with a drive signal;

a photodetecting section for receiving the light that has been reflected from the information storage layer to generate a light amount signal;

a position control section for generating a position control signal to change the positions of the converging section at variable velocities depending on where the converging section is located;

a focus control section for generating a focus control signal based on the light amount signal such that the focal point of the light is located within a focus controllable range with respect to the information storage layer;

a switching section for selectively outputting either the position control signal or the focus control signal; and

a driving section for outputting a drive signal in response to the output signal of the switching section,

wherein the switching section outputs the position control signal to shift the focal point of the light to the focus controllable range and then outputs the focus control signal.

2. The information processing apparatus of claim 1, wherein while the storage medium is being loaded, the position control section generates a retraction signal that changes the positions of the converging section away from the storage medium in multiple steps.

3. The information processing apparatus of claim 2, wherein the position control section changes the positions of the converging section at a first velocity initially and then at a second velocity, which is lower than the first velocity, once the converging section has reached a first position.

4. The information processing apparatus of claim 1, wherein while the storage medium is being loaded, the position control section generates a position control signal that changes the positions of the converging section toward the storage medium in multiple steps.

5. The information processing apparatus of claim 4, wherein the position control section changes the positions of the converging section at a third velocity initially and then at a fourth velocity, which is lower than the third velocity, once the converging section has reached a second position.

6. The information processing apparatus of claim 5, wherein the focus control section determines, by the light amount signal, whether or not the focal point of the light has entered the focus controllable range and generates a switch instruction when the focal point enters the range, and

wherein in accordance with the switch instruction, the switching section changes its output signals from the position control signal into the focus control signal.

7. The information processing apparatus of claim 6, further comprising a monitoring section for determining, by the light amount signal, whether the focal point of the light is inside or outside the focus controllable range,

wherein if the monitoring section has sensed that the focal point has gone beyond the range while the switching section is outputting the focus control signal, then the position control section generates a retraction signal that changes the positions of the converging section away from the storage medium in multiple steps.

8. A disk controller to be built in a disk drive that operable to read and/or write data from/on a disk,

the disk drive comprising: a light source; a converging section for converging light that has been emitted from the light source; a shifting section for shifting the focal point of the light by changing the positions of the converging section perpendicularly to an information storage layer of a storage medium in accordance with a drive signal; a photodetecting section for receiving the light that has been

reflected from the information storage layer to generate a light amount signal; and a driving section for outputting a drive signal in response to a drive control signal,

wherein the disk controller comprises:

a position control section for generating a position control signal to change the positions of the converging section at variable velocities depending on where the converging section is located;

a focus control section for generating a focus control signal based on the light amount signal such that the focal point of the light is located within a focus controllable range with respect to the information storage layer; and

a switching section for selectively outputting either the position control signal or the focus control signal as the drive control signal, the switching section outputting the position control signal to shift the focal point of the light to the focus controllable range and then outputting the focus control signal.

9. An information processing method comprising the steps

of:

converging light that has been emitted from a light source using an optical system;

shifting the focal point of the light by moving the converging position of the light perpendicularly to an information storage layer of a storage medium in accordance with a drive signal;

receiving the light that has been reflected from the information storage layer to generate a light amount signal;

generating a position control signal to change the positions of the optical system at variable velocities depending on where the optical system is located;

generating a focus control signal based on the light amount signal such that the focal point of the light is located within a focus controllable range with respect to the information storage layer;

selectively outputting either the position control signal or the focus control signal; and

generating a drive signal based on the signal that has been output in the step of selectively outputting,

wherein the step of selectively outputting includes outputting the position control signal to shift the focal point of the light to the focus controllable range and then outputting the focus control signal.